

WHAT IS CLAIMED IS:

1. A reservoir for storing hydrogen, comprising:
a housing;

5 a molded body accommodated in the housing, wherein the molded body is formed by compressing a hydrogen storage material powder, the molded body causes exothermic reaction when absorbing the hydrogen and causes endothermic reaction when releasing the hydrogen, and the molded body has a first
10 side and a second side opposite to the first side;

a heat medium passage formed in the interior of the housing to face the first side of the molded body, wherein heat is transmitted from the molded body to a heat medium in the heat medium passage when the molded body absorbs the
15 hydrogen, and heat is transmitted from the heat medium in the heat medium passage to the molded body when the molded body releases the hydrogen; and

a hydrogen passage formed in the interior of the housing to face the second side of the molded body.
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2. The reservoir as set forth in claim 1, wherein the heat medium passage includes a duct that has a hole in which the heat medium flows, and the duct contacts the first side of the molded body.

25 3. The reservoir as set forth in claim 2, wherein the duct is flat, and the hole is one of a plurality of holes that extend parallel with each other in the duct.

30 4. The reservoir as set forth in claim 1, wherein the molded body contains a highly heat conductive material.

35 5. The reservoir as set forth in claim 4, wherein the highly heat conductive material is copper.

6. The reservoir as set forth in claim 1, wherein the molded body has a plate-like shape, and the first and second sides of the molded body are flat.

7. The reservoir as set forth in claim 6, wherein the heat medium passage and the hydrogen passage are flat.

8. The reservoir as set forth in claim 1, further comprising a filter located in the hydrogen passage.

9. The reservoir as set forth in claim 1, further comprising a main passage extending along the molded body and connected to the hydrogen passage, wherein the hydrogen is supplied from the exterior of the housing to the hydrogen passage through the main passage and is discharged from the hydrogen passage to the exterior of the housing through the main passage.

10. A reservoir for storing hydrogen, comprising:
a housing;
a plurality of storage units stacked in the interior of the housing, wherein each storage unit includes:

a pair of plate-like molded bodies formed by compressing a hydrogen storage material powder, wherein each molded body causes exothermic reaction when absorbing the hydrogen and causes endothermic reaction when releasing the hydrogen, the molded body includes a first flat side and a second flat side opposite to the first side, and the molded bodies are located with respect to each other such that the first sides face each other; and

a heat exchanger located between the molded bodies, wherein the heat exchanger includes a flat duct in which a heat medium flows, the duct contacts the first side of each molded body, heat is transmitted from the molded

bodies to the heat medium in the duct when the molded bodies absorb the hydrogen, and heat is transmitted from the heat medium in the duct to the molded bodies when the molded bodies release the hydrogen; and

5 a plurality of flat hydrogen passages formed in the interior of the housing to face the second sides of the molded bodies.

10 11. The reservoir as set forth in claim 10, wherein each molded body contains copper.

12. The reservoir as set forth in claim 10, further comprising a filter located in each hydrogen passage.

15 13. The reservoir as set forth in claim 10, wherein:
each molded body includes a chamfer;
a main passage is formed between each chamfer and a wall of the housing and is connected to the associated hydrogen passage; and
20 the hydrogen is supplied from the exterior of the housing to the hydrogen passages through the associated main passages and is discharged from the hydrogen passages to the exterior of the housing through the associated main passages.

25 14. The reservoir as set forth in claim 10, wherein the duct of each storage unit includes:

an upstream section and a downstream section, which extend parallel with each other; and

30 a connecting section, which connects the upstream section to the downstream section to form a substantially U-shaped heat medium passage in the duct.

15. The reservoir as set forth in claim 14, wherein:

35 the housing includes a main body for accommodating the storage units and a header attached to the main body;

the header defines an upstream chamber for receiving the heat medium from the exterior and a downstream chamber for discharging the heat medium to the exterior; and

- 5 the upstream section is connected to the upstream chamber while the downstream section is connected to the downstream chamber.